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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/589,800	08/17/2006	Youji Inoue	U 016441-4	2403
140	7590	09/07/2007	EXAMINER	
LADAS & PARRY			WILSON, BRYAN E	
26 WEST 61ST STREET			ART UNIT	
NEW YORK, NY 10023			PAPER NUMBER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/589,800	Applicant(s) INOUE ET AL.	
	Examiner Bryan E. Wilson	Art Unit 2891	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>8-17-2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-4, and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Suzuki et al. (Suzuki et al., Proc. 2003 MRS Fall Meeting, K10.52 as provided in the Information Disclosure Statement).
 - a. Suzuki et al. disclose synthesis and properties of perfluorinated pentacene ($C_{22}F_{14}$), as the n-type semiconductor material in OFETs (see section K10.52 of MRS Fall 2003 Symposium Program: "Symposium K: Functional Organic Materials and Devices").
4. Claim 5 is rejected under 35 U.S.C. 102(a) as being anticipated by Sakamoto, et al.
 - a. Sakamoto et al. disclose perfluorotetracene ($C_{18}F_{12}$) for use as an n-type semiconductor in OFETs (see page 243 of Annual Review publication)

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. (Suzuki et al., Proc. 2003 MRS Fall Meeting, K10.52 as provided in the Information Disclosure Statement) in view of Shtein '586.

a. Suzuki et al. disclose synthesis and properties of perfluorinated pentacene (C₂₂F₁₄), as the n-type semiconductors for OFETs (see section K10.52 of MRS Fall 2003 Symposium Program: "Symposium K: Functional Organic Materials and Devices") but does not recite that the material is formed by controlling the temperature of the substrate to 30°C or higher and 65°C or lower in a vacuum. However, Shtein discloses organic film growth at a substrate temperature of

50°C and at a pressure of 8 Torr (see e.g. [0010]). Therefore it would have been obvious to a person of ordinary skill in the art at the time of the invention to have deposited the perfluoropentacene of Suzuki et al. at a temperature of 50°C and pressure of 8 Torr as taught by Shtein so as to form highly ordered polycrystalline organic thin films that exhibit competitive performance characteristics such as carrier mobility, on/off ratio, threshold voltage and subthreshold slope (see Shtein at paragraph [0010]).

8. Claims 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sakamoto et al. in view of Shtein '586.

a. Sakamoto et al. disclose perfluorotetracene ($C_{18}F_{12}$) for use as an n-type semiconductor in OFETs (see page 243 of Annual Review 2003 publication) but does not recite that the material is formed by controlling the temperature of the substrate to 24°C or higher and 60°C or lower in a vacuum. However, Shtein discloses organic film growth at a substrate temperature of 50°C and at a pressure of 8 Torr (see e.g. [0010]). Therefore it would have been obvious to a person of ordinary skill in the art at the time of the invention to have deposited perfluorotetracene of Sakamoto at a temperature of 50°C and pressure of 8 Torr as taught by Shtein so as to form highly ordered polycrystalline organic thin films that exhibit competitive performance characteristics such as carrier mobility, on/off ratio, threshold voltage and subthreshold slope (see Shtein at paragraph [0010]).

9. Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. (Suzuki et al., Proc. 2003 MRS Fall Meeting, K10.52 as provided in the Information Disclosure Statement) in view of Schön.

a. Suzuki discloses all of the elements of the claims as applied to claim 1 above but does not disclose an ambipolar transistor. However, Schön discloses that pentacene has been found to have high mobility for hole transport when used as a p-channel (see Schön page 1022). Therefore it would have been obvious to provide an ambipolar transistor in which at least one of the p-channel layers is pentacene as taught by Schön in the device of Suzuki in order to exploit the advantages of complementary logic, such as low-power dissipation, good noise margins, robust operation and ease of circuit design (see Schön page 1022).

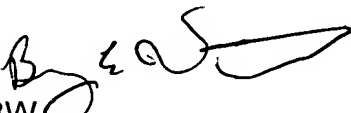
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bryan E. Wilson whose telephone number is (571) 270-1568. The examiner can normally be reached on Monday through Friday 8:00am-4:30pm E.S.T..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Baumeister can be reached on (571)272-1722. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2891

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


BW
09-04-2007

Asok Kumar Sarkar
9/4/07

ASOK K. SARKAR
PRIMARY EXAMINER